Amendment to the Claims

1 (Currently Amended). A method for communication between two or more customer local area network (LAN) segments through a provider network, with each customer LAN segment including a customer edge bridge, and where the provider network has one or more provider edge bridges coupled to the customer edge bridges, comprising the steps of:

in the provider edge bridges coupled to a customer LAN segment:

receiving topology change notifications (TCNs) from the customer network;

in response to receiving a TCN, monitoring end host addresses in data units received from the customer network for a predetermined time period;

flushing an address memory file associating end host addresses with ports of the provider edge bridge in response to detecting an end host address indicating that a topology change has occurred in one or more of the customer LAN segments affecting paths of data units through the provider network, wherein detecting an end host address indicating that a topology change has occurred comprises ~~at least one of~~:

~~detecting the end host address of a data unit received in the predetermined time period is in conflict with information in the memory address file;~~

detecting a predetermined number of end host addresses of data units received in the predetermined time period is not found in the address memory file; and

~~detecting the end host address of a data unit received in the predetermined time period is not found in the address memory file and if the end host address is found an address memory file of another bridge in the provider network;~~

in response to determining a topology change in one or more of the customer LAN segments do not affect paths of data units through the provider network, storing a new address in the address memory file without flushing the address memory file.

2 – 4. (Canceled).

5 (Previously Presented).   The method of claim 1 and further comprising the step of storing a list of end host addresses that are received during the predetermined time period and are not found in the address memory file.

6 (Original).   The method of claim 1 wherein said end host address are media access control (MAC) addresses.

7 (Original).   The method of claim 1 wherein the data units are frames.

8 (Currently Amended).   A method for communication between two or more customer local area network (LAN) segments through a provider network, where each customer LAN segment includes ~~including~~ a customer edge bridge, and where the provider network has one or more provider edge bridges coupled to the customer edge bridges, comprising the steps of:

in each edge bridge of a LAN segment having a multi-homed connection to the provider network:

determining whether a topology change in the customer LAN segment affects paths of data units through the provider network;

when a topology change does not affect paths of data units through the provider network, transmitting unflagged topology change notifications (TCNs);

when a topology change affects paths of data units through the provider network, transmitting flagged ~~flagging~~ topology change notifications (TCNs) which relate to the topology changes affecting paths of data units through the provider network ~~by flagging TCNs which relate to a blocked path coupled to the edge bridge and flagging TCNs generated locally at the edge bridge~~;
and

in each of the provider edge bridges coupled to a customer LAN segment:

receiving topology change notifications (TCNs) from the customer network;

in response to receiving a flagged TCN, flushing an address memory file associating end host addresses with ports of the provider edge bridge; and

in response to receiving an unflagged TCN, passing the TCN without flushing an address memory file.

9 -10. (Canceled).

11 (Currently Amended).   A provider edge bridge of a provider network for providing communication with one or more customer edge bridges of customer local area network (LAN) segments, comprising:

processing circuitry for:

receiving topology change notifications (TCNs) from the one or more customer bridges;

in response to receiving a TCN, monitoring end host addresses in data units received from the one or more customer bridges for a predetermined time period;

flushing an address memory file associating end host addresses with ports of the provider edge bridge if a data unit received in the predetermined time period has a end host address indicating that a topology change has occurred in one or more of the customer LAN segments affecting paths of data units through the provider network, wherein an end host address indicates that a topology change has occurred by ~~at least one of:~~

the end host address of a data unit received in the predetermined time period is in conflict with information in the address memory file;

~~a predetermined number of end host addresses of data units received in the predetermined time period is not found in the address memory file;~~ and

~~the end host address of a data unit received in the predetermined time period is not found in the address memory file and if~~ the end host address is found in an address memory file of another bridge in the provider network; and ~~network.~~

in response to an incoming an end host address not contradicting information in the address memory file in the predetermined time period and the end host address is not found in an address memory file of another bridge in the provider network, storing a new address in the address memory file without flushing the address memory file.

12 – 14. (Canceled).

15 (Previously Presented).   The provider edge bridge of claim 11 and further including a memory for storing a list of end host addresses that are received during the predetermined time period and are not found in the address memory file.

16 (Original). The provider edge bridge of claim 11 wherein said end host address are media access control (MAC) addresses.

17 (Original). The provider edge bridge of claim 11 wherein the data units are frames.

18 (Currently Amended).   A communication network including two or more customer local area network (LAN) segments coupled through a provider network, where each customer LAN segment includes a customer edge bridge, and where the provider network has one or more provider edge bridges coupled to the customer edge bridges, comprising:

in each edge bridge of a LAN segment having a multi-homed connection to the provider network, a customer edge bridge comprising a processor for flagging topology change notifications (TCNs) which relate to topology changes affecting paths of data units through the provider network, wherein TCNs are flagged in response to a blocked path coupled to the edge

bridge and in response to TCNs generated locally by the customer edge bridge and wherein TCNs are not flagged in response to other topology changes not affecting paths of data units through the provider network; and

in each of the provider edge bridges coupled to a customer LAN segment a processor for:

receiving topology change notifications (TCNs) from the customer network;

in response to receiving a flagged TCN, flushing an address memory file associating end host addresses with ports of the provider edge bridge; and

in response to receiving an unflagged TCN, passing the TCN without generating an address memory file.

19 – 20. (Canceled).

21. (New) The method of claim 1, wherein detecting an end host address indicating that a topology change has occurred in one or more of the customer LAN segments affecting paths of data units through the provider network, further comprises:

detecting a predetermined number of end host addresses of data units received in the predetermined time period is not found in the address memory file; and

determining that end host addresses of data units received in the predetermined time period are found in an address memory file of another bridge in the provider network.

22. (New). The method of claim 1, wherein determining a topology change in one or more of the customer LAN segments does not affect paths of data units through the provider network, comprises:

determining an incoming end host address is not contradicting information in the address memory file in the predetermined time period.